



CITY of MODESTO

*Public Works
Department*

March 25, 2008

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*Water Quality
Control Facility*

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**SUBJECT: Comments on February 21, 2008 Revised Tentative Order --
Waste Discharge Requirements for the City of Modesto Water
Quality Control Facility – Stanislaus County - NPDES permit No.
CA0079103**

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*Wastewater
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Compliance*

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Thank you for the efforts of you and your staff in considering comments received and revising the Central Valley Regional Water Quality Control Board's (Regional Board) Tentative Order (TO) for *Waste Discharge Requirements for the City of Modesto Water Quality Control Facility* (WQCF, NPDES No. CA0079103).

Most all of the City's primary concerns were either directly addressed or otherwise clarified in the revised TO dated February 21, 2008. However, the City faces a dilemma with the timing of Permit final ammonia effluent limitation reopener, short-term process improvements for ammonia removal (nitrification), and the long-term master plan (Phase 2, after 2016), which includes complete nitrification and denitrification for all river discharge. The City is concerned that the five year compliance period does not allow enough time to complete receiving water studies to calculate a revised final effluent limitation to reopen the permit and then complete construction of any short term nitrification facilities. A longer compliance period would provide time to complete the receiving water studies to determine the ammonia effluent limitation necessary to protect aquatic life, reopen the permit, and then optimize staging of necessary improvements. Nitrification beyond the level necessary to protect aquatic life may also impact disinfection, as fewer chloramines would be present during disinfection requiring higher dosages of chlorine, and possibly resulting in increased levels of trihalomethanes. All proposed expansion and improvements in Phases 1A, 1B, and 2 include ultraviolet (UV) disinfection.

Therefore, the City requests a longer ammonia compliance schedule. *Specifically, the City requests that the ammonia compliance period be extended from five to ten years to allow for the completion of effluent limitation studies, and further progression of Master Plan Phase 1A and 1B improvements to determine if these efforts will ensure compliance with final ammonia effluent limitations.* However, the City understands that it may not be possible to make this compliance period change until the infeasibility of complete nitrification by 2013 is demonstrated. *In that event, the City requests that the ammonia reopener, which was*

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Operations*

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added in the revised TO per the City's request, be further modified, as described in this letter, to consider a longer compliance period.

Final Effluent Limitation Reopener Studies

The City plans to develop a dynamic model for ammonia effluent limitation calculation, a water effects ratio for water quality criteria adjustment, and a follow-up dilution study. The City is confident that these studies will demonstrate that a higher final effluent limitation would be protective of aquatic life. Although the combination of a final effluent limitation reopener and Phase 1A and 1B construction may allow compliance with a final ammonia effluent limitation, the City is still moving forward with engineering analysis of short-term nitrification options in the existing system. However, because the aforementioned receiving water and effluent limitation studies may take at least three years to complete and additional time to peer review and reopen the permit, the City will likely need longer than the currently permitted five year compliance period.

Engineering Analysis of Short-term Nitrification

The City is currently evaluating all short-term options to ensure compliance with the final effluent limitations in the TO, but will need to pilot test and/or evaluate certain nitrification process changes. As part of this evaluation, the City will need to evaluate the impact of short-term nitrification on disinfection, and potentially mitigate THM production until the entire river discharge is treated through the proposed longer-term UV system. Separate from these short-term improvements, the City's Master Plan includes full nitrification and denitrification with all expansion, and then later in Phase 2 for all river discharge. Initial cost estimates on the short-term nitrification options indicate that longer-term improvements may need to be delayed in order to fund and construct the short term options.

Ammonia Water Quality Objective and Justification for Longer Compliance Period

The USEPA ammonia water quality criteria are incorporated by the Basin Plan based on the narrative toxicity objective. Also, Basin Plan ammonia water quality criteria are based on pH and temperature. The City was previously able to comply with a pH-based "floating" limitation. Based on a petition heard by the State Water Resources Control Board (State Board), in the matter of a June 2003 Yuba City permit (No. R5-2003-0086), the Regional Board no longer uses floating limitations for ammonia. The basis for this policy change is the State Board's response (SWRCB/OCC File A-1580) in both footnote No. 19 and conclusion No. 6. Footnote 19 reads as follows:

"We note that while the Regional Board could have used this hardness value to calculate effluent limitation values for cadmium, copper, and zinc, it instead applied a variable hardness whereby effluent limitations will vary depending on the actual, current hardness values in the receiving water. We recommend that the Regional Board establish either a fixed or seasonal effluent limitations for metals, as provided in the SIP, rather than "floating" effluent limitations."

Conclusion No. 6 states the following:

"In establishing effluent limitations for metals, it is preferable to establish fixed or seasonal effluent limitations, as provided in the SIP, rather than "floating" limitations"

The final effluent limitations in the TO are based on worst-case conditions for pH (8.5). When compared to the (operationally) achievable floating effluent limitation, this new use of the water quality criteria effectively constitutes a new criteria and gives the Regional Board discretion to allow a compliance period of ten years, if necessary.

Requested Modifications to Permit

If it is not possible to modify the TO to allow a ten year compliance period for ammonia, the City requests the following modifications (underlined) in the revised TO:

Reopener Provision VI.C.1.g:

Ammonia Site-specific Objective Study. In addition to the Discharger conducting a site-specific WER study that demonstrates a less stringent standard may be warranted and/or a mixing zone study that demonstrates a dilution credit may be considered (See sections VI.C.3.e and f of this Order), the Discharger may also provide dynamic modeling using site-specific effluent and receiving water monitoring values for effluent limitation calculations. When requested, the Regional Water Board will review such studies and dynamic modeling results and if warranted, may reopen this Order to modify effluent limitations or to extend the interim compliance period if compliance is not possible with the modified or unmodified final effluent limitations.

Compliance Schedule Provision VI.C.7.c:

By 18 May 2010, the Discharger shall comply with the final effluent limitations for chlorodibromomethane and dichlorobromomethane; and **within 5 years from the effective date of this Order**, the Discharger shall comply with the ammonia final effluent limitations. This compliance schedule is contingent upon the Discharger submitting a compliance schedule justification for ammonia, chlorodibromomethane, and dichlorobromomethane **within 90 days of the effective date of this Order**. The compliance schedule justification shall include all items specified in Paragraph 3, items (a) through (d), of section 2.1 of the SIP. The Regional Board may extend the ammonia compliance period pending the results of any reopener studies submitted as part of section VI.C.1.g of this Order. As this compliance schedule is greater than one year, the Discharger shall submit semi-annual progress reports in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.)

Finally, the City recommends some minor editorial changes:

- Section VI.C.2.a.iii should include a footnote or other reference to the adjustment of TUC triggers if dilution is allowed based on the dilution study. The text should be modified as follows:

“The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring and initiate a TRE. If acute or chronic dilution is allowed based on the sections VI.C.3.f and VI.C.3.g of this Order, the TUC trigger will be adjusted accordingly.”

The corresponding Fact Sheet section, VII.B.2.a should also be modified as follows:

“Monitoring Trigger. A numeric toxicity monitoring trigger of > 1 TUC (where TUC = 100/NOEC) is applied in the provision, because this Order does not allow any dilution for the chronic condition. Therefore, a TRE is triggered when the effluent exhibits a pattern of toxicity at 100% effluent. If acute or chronic dilution

is allowed based on the sections VI.C.3.f and VI.C.3.g of this Order, the TUc trigger will be adjusted accordingly."

- Section X. A. has two No. 1 items in an apparent numbering typographical error.
- In multiple locations, the Order and Fact Sheet reference the yet-submitted request and justification for interim effluent limitations (i.e., "infeasibility analysis") and requires this analysis to be submitted within 90 days of permit effective data. The Regional Board has subsequently requested this analysis before permit adoption. The following sections of the Order and Fact sheet should be updated once the analysis is submitted: page 31 - Provision VI.C.7.c.i., pages F-36 and F-37 – Fact Sheet Sections IV.C.3.n and IV.C.3.m.

Again, thank you for your consideration of our comments. Please let me or John Rivera (209.577.6381) know if you have any questions regarding our comments provided above or would like to meet and discuss these issues further.

Regards,



Gary DeJesus
Deputy Director, Public Works

cc: John Rivera, City of Modesto
Brian Laurensen, Larry Walker Associates